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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|------------------------------|------------------|
| 10/675,571 | 09/30/2003 | Ranbir Singh | Kohler 9-30-38/075903-237 | 9973 |
| 29391 | 7590 | 04/19/2005 | EXAMINER | |
| BEUSSE BROWNLEE WOLTER MORA & MAIRE, P. A. 390 NORTH ORANGE AVENUE SUITE 2500 ORLANDO, FL 32801 | | | NGUYEN, VAN THU T | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2824 | |

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

(A)

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/675,571 | SINGH ET AL. | |
| | Examiner | Art Unit | |
| | VanThu Nguyen | 2824 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03/07/2005 - Response to Restriction.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 33-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 17-23 and 26-32 is/are rejected.
- 7) ☒ Claim(s) 14-16, 24 and 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 33-35 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Election was made in the reply filed on March 7, 2005.
2. Claims 1-32 are present for examination.
3. Applicants are required to cancel claims 33-35 in the next response.

Drawings

4. Figures 1 and 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. Claims 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is an inconsistency between claims 6 and 7-8 regarding third, and fourth doped regions.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims **1-13, 17-23 and 26-28** are rejected under 35 U.S.C. 102(b) as being anticipated by Miyagi (U.S. Patent No. 6,330,204).

Regarding claim 1, Miyagi discloses, in FIG. 2, an apparatus for opening an integrated circuit fuse by controllably passing current there through, comprising:

a controllable bulk semiconductor device (thyristor 11);

an element (transistor 12) for controlling an on state of the bulk semiconductor device; and

wherein current flows through the fuse in response to the on state of the bulk semiconductor device for opening the fuse.

(See column 6, lines 37-47)

Regarding claims 2-13, Miyagi also discloses the bulk semiconductor device comprises a thyristor 11 (see FIG. 1 and its layout in FIG. 7); wherein the thyristor comprising four alternating doped regions first P+ region 210, second N- well region 206, third P- substrate region 207, fourth and N+ region 213 (see column 11, lines 15-43); other limitations in claims 2-13 are partially disclosed, partially inherent within thyristor 11.

Regarding claims 17-23 and 26-28, they are rejected under U.S.C. 102(b) since they recite similar limitations as in claims 1-13.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims **3-4, 6, 8-9, 12-13, 18-23, 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyagi in view of Shah (U.S. Patent No. 6,472,686).

Miyagi discloses, as applied in prior rejection of claims 1-2, all claimed subject matters except further limitations of said thyristor as set forth in claim 3.

Regarding claims 3-4, 6, 8-9, 12-13, , Shah disclose, in FIG. 1, a thyristor comprising four doped regions 1-4 with p/n/p/n structure; a bias voltage applied across anode 1a and cathode 4a, a control gate 3a for controlling the forward bias of the pn junction between p region 3 and n region 4, the thyristor formed in CMOS (see column 4, line 47 to column 5, line 67).

Since Miyagi and Shah are both from the same field of endeavor, the purpose disclosed by Levin et al. would have been recognized in the pertinent art of Miyagi.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the thyristor taught in Shah because the apparatus in Miyagi requires a thyristor with three input terminals and Shah does have it.

Regarding claims 18-23, 26, , they are rejected under U.S.C. 103(a) since they recite the similar limitations as in claims 3-4, 6, 8-9, 12-13.

10. Claims **29-32** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurst et al. (U.S. Patent No. 6,646,912) in view of Miyagi.

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Regarding claim 29, Miyagi discloses, in FIG. 1, an one-time read only memory cell comprising an integrated circuit fuse (fuse 10); a current source (transistor 12); a controllable bulk semiconductor device (thyristor 11); and wherein current flows into the fuse in response to an on state of the bulk semiconductor device for opening the fuse.

However, Miyagi does not disclose a memory array using plurality of that one time read only memory cell.

Hurst discloses, in FIG. 7, an one-time program (OTP) memory device comprising a plurality of addressable rows, a plurality of addressable columns; a memory cell at an intersection of each row and column wherein each memory cell stores data via fuse 64 and thyristor 66.

Since Miyagi and Hurst are both from the same field of endeavor, the purpose disclosed by Hurst would have been recognized in the pertinent art of Miyagi.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art use integrated circuit fuse disclosed in Miyagi for each of the one-time program memory cell in Hurst because the integrated circuit fuse disclosed in Miyagi have improvement in usability.

Regarding claims 30-32, see above rejection applied to claims 1-13.

Allowable Subject Matter

11. Claims 14-16, 24-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is statement of reasons for the indication of allowability:

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The prior art made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. Miyagi and Shah, taken individually or in combination, do not teach the claimed invention having the following limitations, in combination with the remaining claimed limitations: the element for controlling the on state of the semiconductor bulk device comprises a first and a second MOSFET (as in claims 14 and 24).


Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VanThu Nguyen whose telephone number is (571) 272-1881. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-1869. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 15, 2005


VanThu Nguyen
Primary Examiner
Art Unit 2824